Threshold conditions in SIR STD models

ABSTRACT

We propose and analyze a heterogeneous, multigroup, susceptibleinfective-recovery (SIR) sexually transmitted disease (STD) model where the desirability and acceptability in partnership formation are functions of the infected individuals. Then we investigate the dependent reproductive number (R0) at the βij (the probability of disease transmission per contact between an infected partner in group j and a susceptible individual in group i.), then we study the stability and unstability of the model in different states.

Keyword: Balance constraint; Reproductive number; Sensitivity; Transmission